

CLAIMS:

1. A powdery catalyst comprising:

a noble metal particle; and

a porous carrier provided with a complex part configured to hold the

5 noble metal particle, the complex part comprising a composite of a transition metal material, and a constituent material of the porous carrier.

2. The powdery catalyst as claimed in claim 1, comprising:

a set of noble metal particles; and

the porous carrier comprising:

10 a set of complex parts holding a major subset of the set of noble metal particles; and

a remaining part carrying a minor subset of the set of noble metal particles.

3. The powdery catalyst as claimed in claim 1, wherein

15 the noble metal particle comprises one of ruthenium, rhodium, palladium, silver, iridium, platinum, and gold,

the transition metal material comprises one of manganese, iron, cobalt, nickel, copper, and zinc, and

20 the constituent material comprises one of an alumina, a silica, a titanium oxide, a silica alumina, and a zeolite.

4. The powdery catalyst as claimed in claim 1, wherein the noble metal particle is sized within a range of 0.5nm to 20nm.

5. The powdery catalyst as claimed in claim 4, wherein, between a dispersity X1 of noble metal particles after a one-hour firing at 400°C and a
25 dispersity X2 of noble metal particles after a one-hour firing at 700°C, a ratio X2/X1 of the dispersity X2 to the dispersity X1 is 0.7 or more.

6. The powdery catalyst as claimed in claim 1, wherein

the noble metal particle comprises platinum,

the transition metal material comprises cobalt, and
the complex part comprises cobalt aluminate.

7. The powdery catalyst as claimed in claim 1, wherein the complex
part comprises one of cerium, lanthanum, zirconium, praseodymium, and
5 neodymium, contacting with the transition metal material.

8. An exhaust-gas purifying catalyzer comprising:
a powdery catalyst according to claim 1; and
a substrate carrying the powdery catalyst.

9. The exhaust-gas purifying catalyzer as claimed in claim 8,
10 containing a total quantity of noble metal particles not exceeding 0.7g per 1
L of a volume of the substrate.

10. A powdery catalyst production method comprising:
preparing a noble metal particle;
preparing a porous carrier; and
15 providing the porous carrier with a complex part comprising a
composite of a transition metal material and a constituent material of the
porous carrier, holding the noble metal particle by the complex part.

11. The powdery catalyst production method as claimed in claim 10,
comprising:
20 preparing a fine particle within a size range of 0.1nm to 100nm, the
fine particle comprising the noble metal particle and the transition metal
material;

placing the fine particle on the porous carrier; and
firing the porous carrier to provide the porous carrier with the
25 complex part.

12. The powdery catalyst production method as claimed in claim 11,
wherein the fine particle has the noble metal particle covered particles of
the transition metal material.

13. The powdery catalyst production method as claimed in claim 11, wherein the fine particle has a core-shell structure.

14. The powdery catalyst production method as claimed in claim 11, comprising:

5 preparing a colloid comprising the fine particle covered by an organic protector in a dispersion medium; and

 putting the porous carrier in the dispersion medium, having the colloid placed on the porous carrier.